

Detection and General Deterrence



Session Objectives

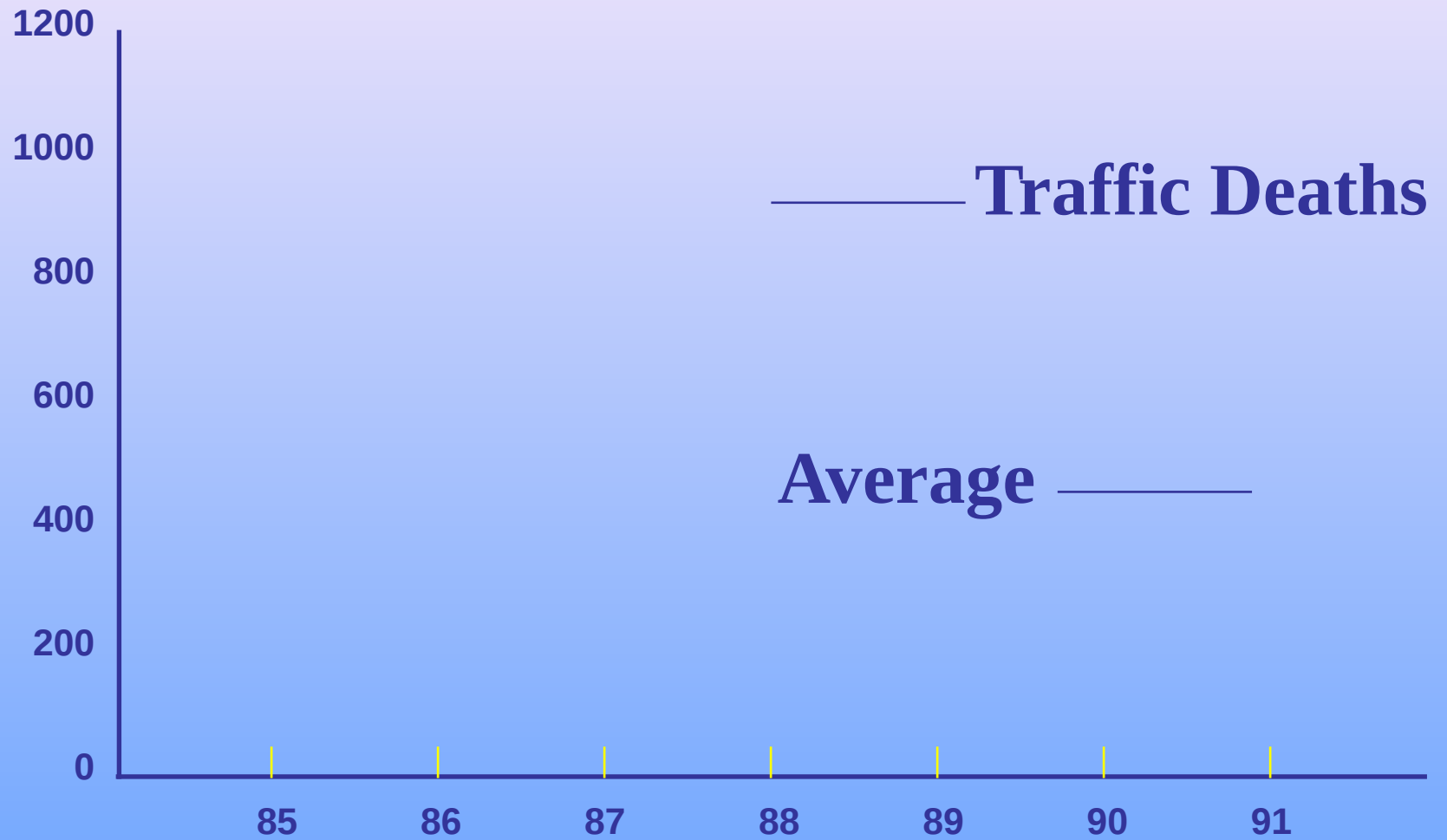
*Upon successfully completing this session,
the participant will be able to:*

- Describe the frequency of DWI violations and crashes.
- Define General Deterrence.
- Describe the relationship between detection and general deterrence.

Session Objectives

*Upon successfully completing this session,
the student will be able to:*

- Describe a brief history of alcohol.
- Identify common types of alcohol.
- Describe the physiologic processes of absorption, distribution and elimination of alcohol in the human body.

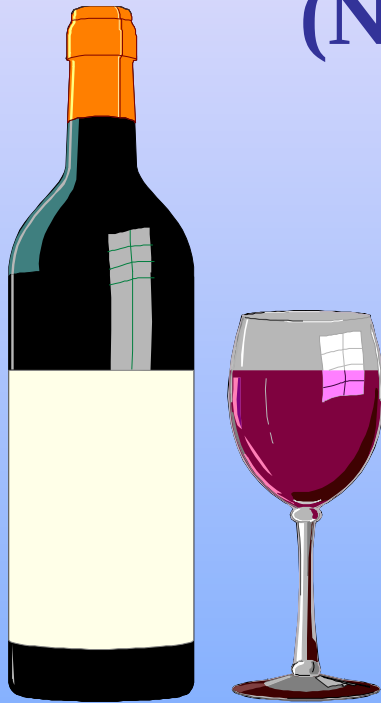


The DWI Problem

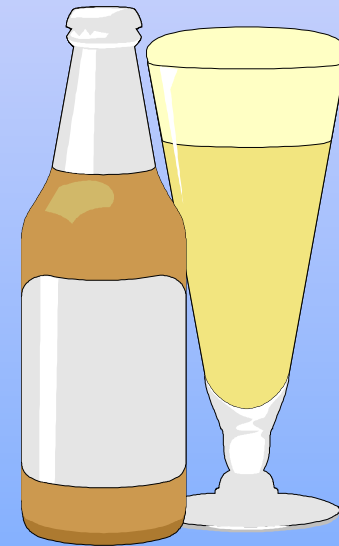
- Prior to 1994, nearly half of the drivers who died in crashes had been all drinking.
- In 2002, alcohol-related fatalities rose to 17,419, representing 41 percent of all traffic fatalities.

Drivers with BAC 0.10 or Above

(National Statistics)



Weekend Nights



10% or More

On Typical Friday and Saturday Nights...



One out of seven drivers leaving bars is DWI!

The Average DWI Violator...

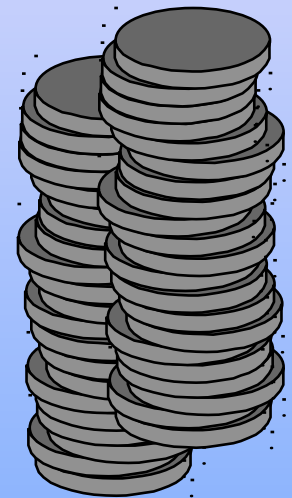
Drives While Intoxicated 80 Times Each Year

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Once every four or five nights!

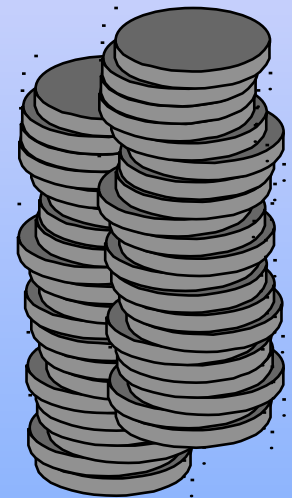
Alcohol Facts

- In 2002, alcohol was involved in approximately 41 percent of all fatal crashes, 9 percent of reported injury crashes and 6 percent of all crashes. 54 percent of all fatal crashes on weekends were alcohol related.



Alcohol Facts

- These alcohol related fatalities represent an average of one alcohol-related fatality every 30 minutes. Based on the most current cost data available, these alcohol-related fatalities cost society approximately \$54 billion in lost productivity, medical expenses, property damages and other related expenditures.



General Deterrence



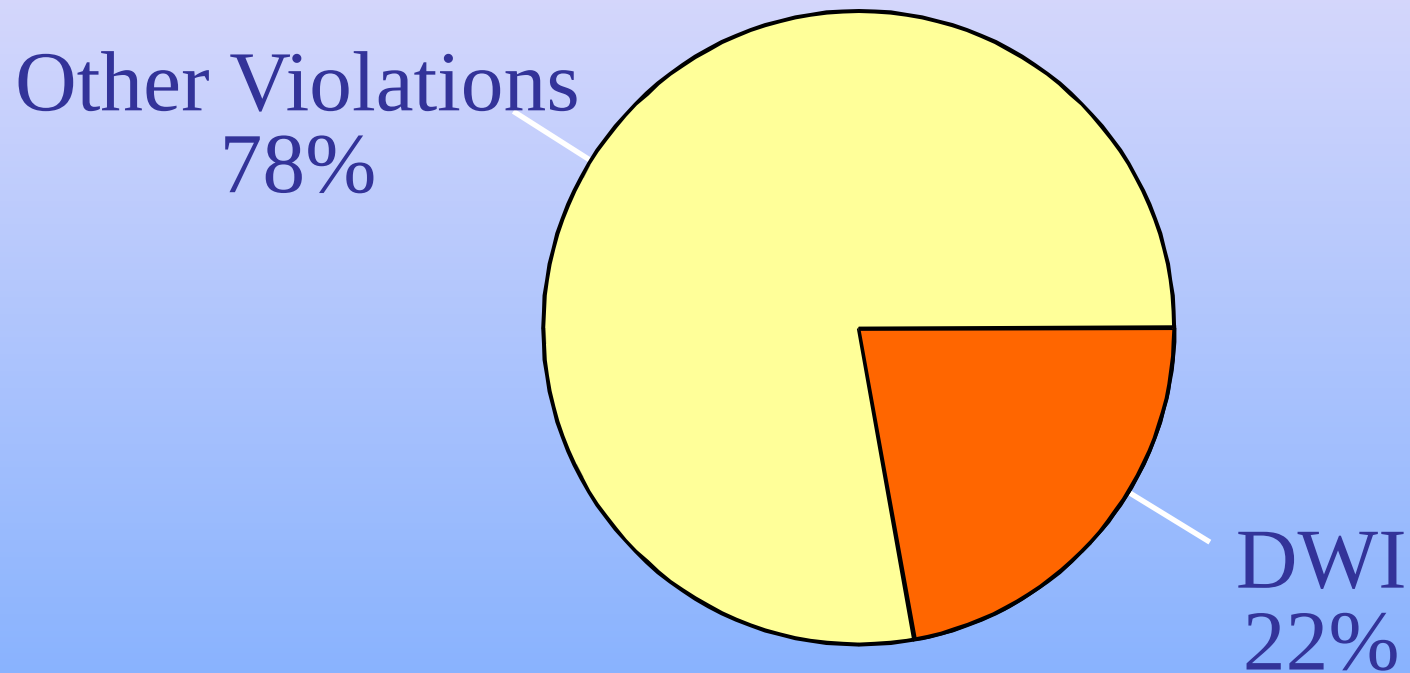
The Fear of Arrest

There is No Reason to **Fear** Arrest



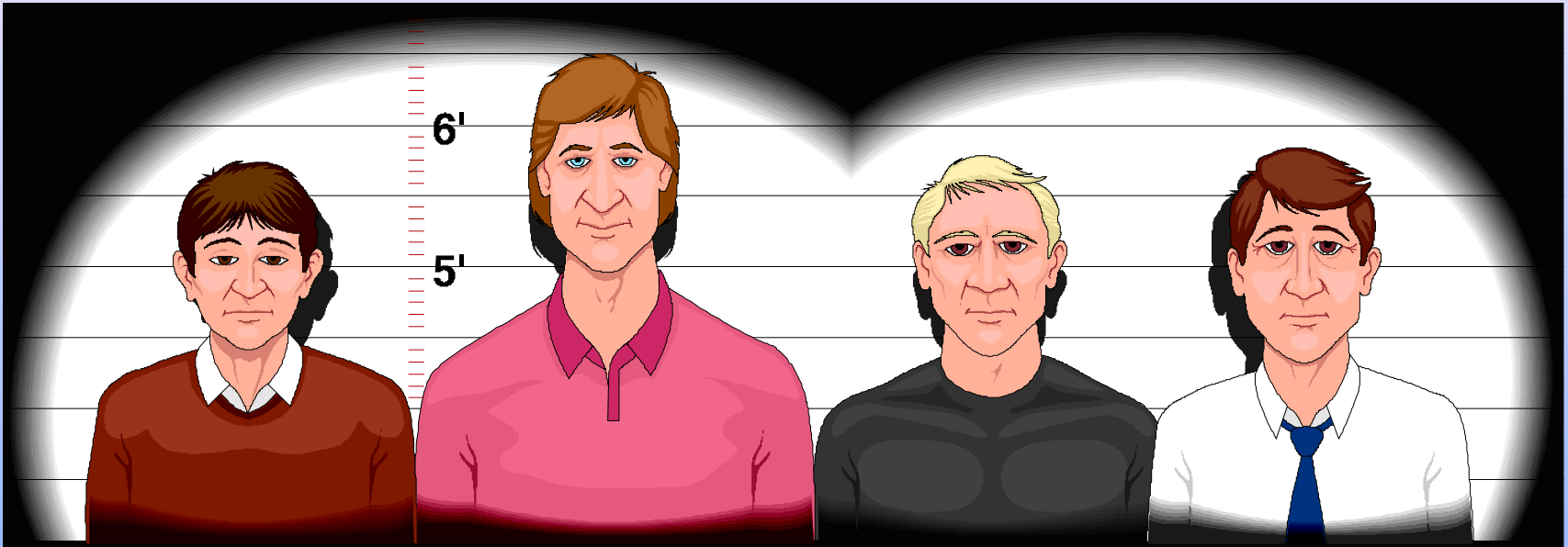
Unless There Really is Some **Risk** of Arrest

Ft. Lauderdale BAC Study



Citations issued to violators later found to have
BACs between 0.10 and 0.20.

For every DWI violator arrested...



**...Three others are contacted face-to-face,
but released without arrest**



Stockton, California 3-Year Intensive Weekend DWI Enforcement

- Arrests: Increased 500%
- Weekend nighttime crashes: Decreased 34%
- Proportion of nighttime, weekend drivers legally under the influence: Dropped from 9% to 6%

Alcohol

**A family of closely-related chemicals
whose molecules are made up of
hydrogen, carbon and oxygen**

Some Types of Alcohol

**Methyl Alcohol
(Methanol)**



**Ethyl Alcohol
(Ethanol)**

**Isopropyl Alcohol
(Isopropanol)**



Ethanol

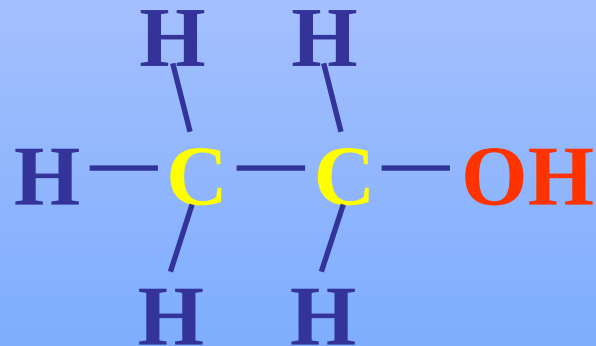
Ethyl Alcohol

(Intended for human consumption)

Chemical Symbols

ETOH

$\text{C}_2\text{H}_5\text{OH}$



Production of Ethanol

Fermentation - Yeast combines with sugars from fruit or grains in a chemical reaction that results in ETOH

Distillation - Fermented beverage is boiled at a controlled temperature to extract and concentrate the ethanol fumes

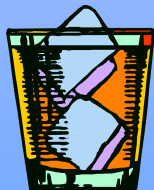
Standard-Sized Drinks




A Can of Beer - 12 ounces of fluid @ 4% alcohol equals 0.48 ounces of pure ethanol



A Glass of Wine - 4 ounces of fluid @ 12% alcohol equals 0.48 ounces of pure ethanol



A Shot of Whiskey (80-Proof) - 1 and 1/4 ounces @ 40% alcohol equals 0.50 ounces of pure ethanol

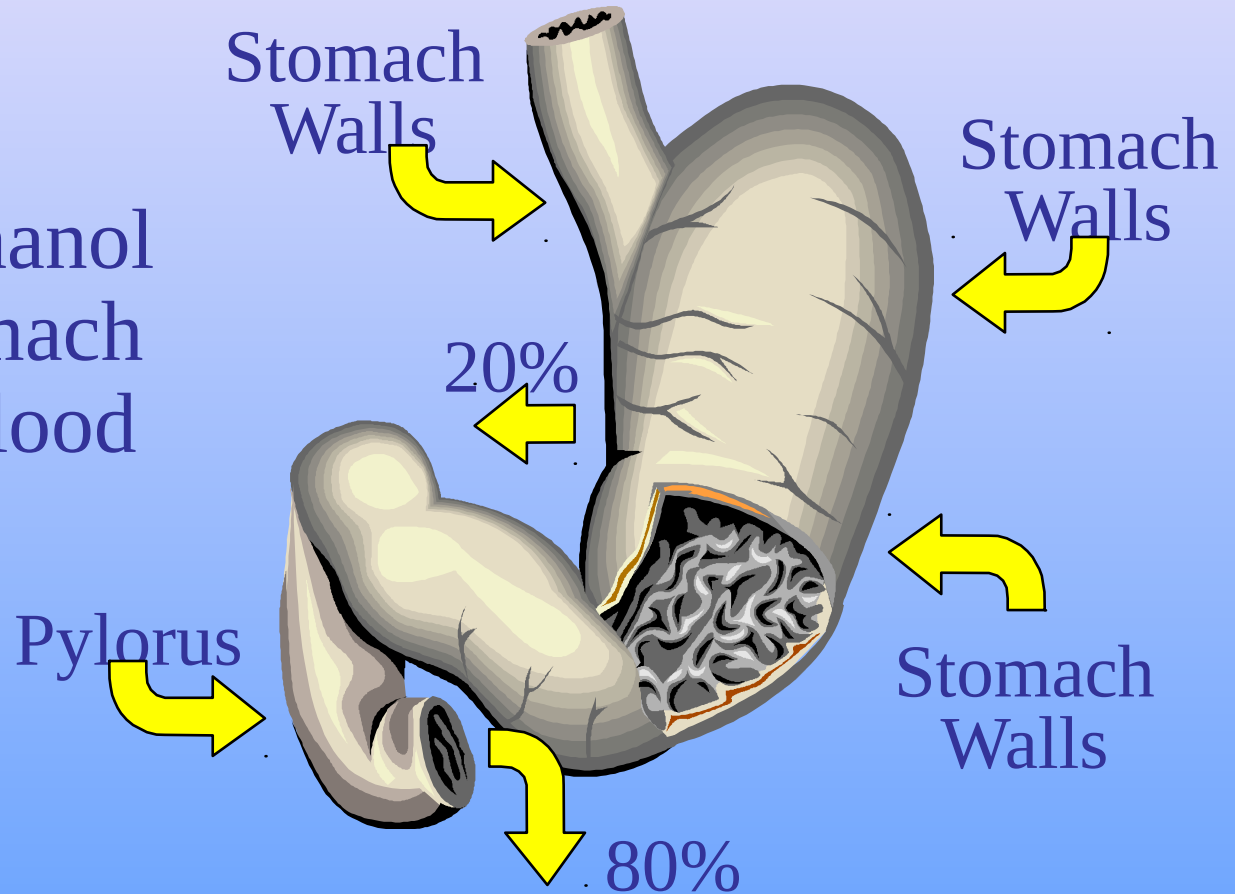


Alcohol is the Most Abused Drug in the United States

Alcohol is a CNS Depressant

Absorption of Alcohol:

Getting the ethanol
out of the stomach
and into the blood



Distribution of Alcohol

Getting the ethanol into the body's tissues
and organs

Basic Principle

Ethanol goes wherever it finds **water**

Which Parts of the Body have Lots of Water?

The Brain; The Liver; Muscle Tissue

Which Parts Don't?

Bones; Fatty Tissue

The average male is 68 percent water

The average female is only 55 percent water

Elimination of Alcohol

Getting the ethanol out of the body

Direct Excretion

Breath, sweat, tears, urine, etc.

Metabolism

Primarily in the liver

Metabolism in the Liver

- The liver **burns** the ethanol (i.e., causes a chemical reaction of ethanol with oxygen).
- The process is aided by an enzyme called **alcohol dehydrogenase**.
- The ultimate products of the chemical reaction are carbon dioxide and water.
- Due to metabolism, the average person's BAC drops by about **0.015 per hour**.

Blood Alcohol Concentration

What does it mean?

BAC is the number of **grams of alcohol** found in **100 milliliters** of the person's blood

Example

If a person has a BAC of .08, then there is one-eighth of a gram of alcohol in every 100 milliliters of the person's blood.

Test Your Knowledge

- The average DWI violator commits that violation _____ times a year.
- In typical enforcement jurisdictions one DWI violation in _____ results in arrest.
- In the Fort Lauderdale study, police officers arrested _____ percent of the drivers they contacted whose BACs were .10 to .20.

Test Your Knowledge

- Name three different chemicals that are **alcohols**. Which of these is **beverage alcohol**, intended for human consumption? What is the chemical symbol for beverage alcohol?
- What is the name of the chemical process by which beverage alcohol is produced **naturally**? What is the name of the process used to produce **high concentration** beverage alcohol?

Test Your Knowledge

- “Blood alcohol concentration is the number of _____ of alcohol in every 100 milliliters of blood.”
 - A. grams
 - B. milligrams
 - C. nanograms

Test Your Knowledge

- True or False: Pound-for-pound, the average woman contains more water than does the average man.
- What do we mean by the “proof” of an alcoholic beverage?
- Every chemical that is an “alcohol” contains what three elements?

Test Your Knowledge

- True or False: Most of the alcohol that a person drinks is absorbed into the blood via the small intestine.
- What is the name of the muscle that controls the passage from the stomach to the lower gastrointestinal track?
- True or False: Alcohol can pass directly through the stomach walls and enter the bloodstream.

Test Your Knowledge

- Suppose a man and a woman who both weigh 160 pounds arrived at a party and started to drink at the same time. And suppose that, two hours later, they both have a BAC of 0.10. Chances are...
 - A. he had more to drink than she did
 - B. they drank just about the same amount of alcohol
 - C. he had less to drink than she did

Test Your Knowledge

- In which organ of the body does most of the metabolism of the alcohol take place?
- What is the name of the enzyme that aids the metabolism of alcohol?

Test Your Knowledge

- Once a person reaches his or her peak BAC, it will drop at a rate of about _____ per hour.
 - A. 0.025
 - B. 0.015
 - C. 0.010
- True or False: It takes about 30 minutes for the average 175-pound man to “burn off” the alcohol in one 12-ounce can of beer.